Space Weather Forecast

Issued on Wednesday, 28 June 2023 at 13:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate solar activity likely.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Moderate, due to two Moderate-class flares from a region in the northwest. A large and increasingly magnetically complex region in the northeast carries the potential for significant flare activity. A CME (coronal mass ejection) from this region late on 27 June has been modelled as potentially being Earth directed, but with limited impacts forecast. The remaining seven sunspot regions do not currently pose a risk of significant flare activity.

Solar Wind / Geomagnetic Activity: The solar wind speeds have become steady at slightly elevated levels after declining from elevated levels. Total magnetic field strength was weak, with the important north-south component of the magnetic field varying weakly. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) has been at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be Low to Moderate, with a slight but increasing chance of X-class flares, mainly from the rapidly developing region in the northeast.

Solar Wind / Geomagnetic Activity: A CME which left the Sun on 27 June may glance the Earth on 01 July, but with low confidence. Solar wind speeds are expected to be relatively muted in the absence of any forecast faster solar winds. Geomagnetic activity is forecast to be Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is most likely to remain at background levels with no solar radiation storms occurring. However, there is a slight chance of count rates increasing should any larger flares occur.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	5	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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